

What is claimed is:

1. A transgenic non-human animal comprising a nucleotide construct capable of altered expression of α -ENaC.
2. The animal of claim 1 wherein the animal further comprises a murine.
3. An isolated and purified nucleotide construct comprising a nucleotide sequence selected from the group consisting of:
- The nucleotide sequence of SEQ ID NO: 1, or its component, or any portion of the nucleotide sequence or complement which is at least 36 nucleotide residues in length;
 - a nucleotide sequence which has at least 80% homology with SEQ ID NO: 1; and
 - any portion of the nucleotide sequence of (b) which is at least 36 nucleotide residues in length.
4. The nucleotide construct of claim 3 wherein said nucleotide sequence encodes a protein having α -ENaC activity.
5. A transgenic non-human animal which has at least one cell which contains a recombinant DNA sequence which includes one of the following nucleotide sequences:
- the nucleotide sequence of SEQ ID NO: 1, or its complement, or any portion of the nucleotide sequence or complement which is at least 36 nucleotide residues in length;
 - a nucleotide sequence which has at least 80% homology with SEQ ID NO: 1; and
 - any portion of the nucleotide sequence of (b) which is at least 36 nucleotide residues in length.

6. The animal of claim 5 wherein said nucleotide sequence encodes a protein having α -ENaC activity.

7. The animal of claim 5 wherein the animal further comprises a murine.

8. A method of producing a non-human mammal with altered expression of α -rENaC in osteoblasts comprising:

a) providing a vector construct containing a transgene encoding a protein having α -rENaC activity; and

b) incorporating the vector construct into the genome of the non-human mammal such that the non-human mammal has altered expression of α -rENaC in osteoblasts.

9. A method of producing a transgenic non-human mammal with altered expression of stretch-activated cation channel in cells responsive to osteocalcin comprising:

a) introducing a transgene into an osteocyte cell of the mammal, the transgene comprising a vector nucleotide sequence pKBpA wherein the stretch-activated cation channel (α -rENaC) is inserted into the pKBpA such that the stretch-activated cation channel gene is expressed; and

b) identifying a mammal which contains the stably integrated transgene and has the ability to express the stretch-activated cation channel transgene in osteoblasts.

10. A method of producing a progeny of a non-human mammal heterozygous for an α -rENaC transgene comprising:

a) mating a first non-human mammal with a second non-human mammal, wherein the first non-human mammal expresses altered levels of stretch-activated cation channel in osteoblasts, and wherein the second non-human mammal expresses normal levels of stretch-activated cation channel in osteoblasts; and

b) selecting progeny derived from said mating of step a) which are heterozygous for the transgene.

11. A method of producing a progeny of a non-human mammal homozygous for the α -rENaC transgene comprising:

a) mating a first non-human mammal with a second non-human mammal, wherein the first non-human mammal and the second non-human mammal express altered levels of stretch-activated cation channel in osteoblasts; and

~~b) selecting progeny derived from said mating of step a) which are homozygous for the transgene.~~

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